, AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Please cancel claim 6 without prejudice.

1. (currently amended) A method for selectively collecting information from a plurality of logical segments in a computing environment, the method comprising:

controllably designating one of a plurality of information storage modes, wherein each of the information storage modes identifies ~~a different set of information from the plurality of logical segments to be stored and identifies~~ one or more conditions occurring in the computing environment under which function, address, and control information of a memory access request ~~the designated set of information~~ will be stored;

controllably designating at least one of a plurality of data collection periods defined by events occurring within designated portions of the computing environment, each of the plurality of data collection periods defining a respective temporal window in which storage of the function, address, and control ~~designated set of~~ information is enabled; and

storing the function, address, and control ~~designated set of~~ information identified by the designated information storage mode only during the temporal window corresponding to the designated data collection period, wherein in response to a first mode the function, address, and control information is stored each time a memory request is received, and in response to a second mode the function, address, and control information stored responsive to function and address information in the memory request matching designated function and address information.

2. (currently amended) The method of Claim 1, further comprising controllably designating an information retrieval mode, wherein retrieval of the stored ~~set of~~ information is enabled in response thereto.

3. (original) The method of Claim 2, wherein controllably designating an information retrieval mode comprises substituting the designation of the information storage mode with the designation of the information retrieval mode.

4. (previously presented) The method of Claim 1, wherein controllably designating at least one of a plurality of data collection periods comprises controllably designating at least one of a plurality of predetermined data collection commencement events, wherein the data collection period commences upon recognition of at least one of the events occurring within the designated portions of the computing environment.

5. (previously presented) The method of Claim 1, wherein controllably designating at least one of a plurality of data collection periods comprises controllably designating at least one of a plurality of predetermined data collection termination events, wherein the data collection period terminates upon recognition of at least one of the events occurring within the designated portions of the computing environment.

6. (canceled)

7. (currently amended) The method of Claim 1, further comprising dynamically reconfiguring the data collection periods to designate a different one of the temporal windows in which storage of the designated ~~set of~~ information is enabled.

8. (previously presented) The method of Claim 1:

wherein controllably designating at least one of a plurality of data collection periods comprises controllably designating at least one data collection commencement event among a plurality of data collection commencement events, wherein the data collection period commences upon recognition of at least one of the events occurring within the designated portions of the computing environment;

wherein controllably designating at least one of a plurality of data collection periods comprises controllably designating at least one data collection termination event among a plurality of data collection termination events, wherein the data

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collection period terminates upon recognition of at least one of the events occurring within the designated portions of the computing environment; and

further comprising reconfiguring the data collection periods by dynamically reconfiguring at least one of the designated data collection events and the designated data termination events.

9. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of <u>function, address, and control information of a memory access request</u> ~~selected subsets of the operational information~~ based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the <u>function, address, and control information</u> ~~selected subset of operational information~~ into the memory upon activation of an initiation event occurring within at least one of the functional modules and corresponding to the received collection initiation identifier, and to terminate storing of the <u>function, address, and control</u> ~~selected subset of operational~~ information into the memory upon activation of a termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, <u>wherein in response to a first write mode identifier the dynamically-configurable timing</u>

control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information.

10. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of function, address, and control information of a memory access request ~~selected subsets of the operational information~~ based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the function, address, and control information ~~selected subset of operational information~~ into the memory upon activation of an initiation event occurring within at least one of the functional modules and corresponding to the received collection initiation identifier, and to terminate storing of the function, address, and control ~~selected subset of operational~~ information into the memory upon activation of a termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, wherein the dynamically-configurable write mode selection module comprises a write

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mode scan register that is loaded via a dynamic scan operation, <u>and wherein in response to a first write mode identifier the dynamically-configurable timing control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information.</u>

11. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of <u>function, address, and control information of a memory access request</u> ~~selected subsets of the operational information~~ based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the<u> function, address, and control information of a memory access request</u> ~~selected subsets of the operational information~~ into the memory upon activation of an initiation event occurring within at least one of the functional modules and corresponding to the received collection initiation identifier, and to terminate storing of the <u>function, address, and control</u> ~~selected subset of operational~~ information into the memory upon activation of a

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termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, wherein the dynamically-configurable timing control module comprises a timing control scan register that is loaded via a dynamic scan operation, wherein in response to a first write mode identifier the dynamically-configurable timing control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information.

12. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of function, address, and control information of a memory access request ~~selected subsets of the operational information~~ based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the function, address, and control information of a memory access request ~~selected subsets of the operational information~~ into the memory upon activation of an initiation event occurring within at least one of the functional modules and corresponding to the received collection

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initiation identifier, and to terminate storing of the function, address, and control ~~selected subset of operational~~ information into the memory upon activation of a termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, wherein the dynamically-configurable write mode selection module further comprises means for enabling the function, address, and control ~~selected subset of the operational~~ information to be stored in the memory if the function, address, and control ~~subset of operational~~ information changes from a first defined time to a second defined time, in response to a corresponding write mode selection identifier, wherein in response to a first write mode identifier the dynamically-configurable timing control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information.

13. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of function, address, and control information of a memory access request ~~selected subsets of the operational information~~ based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

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a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the <u>function, address, and control information of a memory access request</u> ~~selected subsets of the operational information~~ into the memory upon activation of an initiation event occurring within at least one of the functional modules and corresponding to the received collection initiation identifier, and to terminate storing of the <u>function, address, and control information</u> ~~selected subset of operational~~ information into the memory upon activation of a termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, ~~wherein the dynamically-configurable write mode selection module further comprises means for enabling the selected subset of the operational information to be stored in the memory, if a current function value within the selected subset of operational information matches a predetermined function value, and if a current address value within the selected subset of operational information matches a predetermined address value, in response to a corresponding write mode selection identifier~~, <u>wherein in response to a first write mode identifier the dynamically-configurable timing control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information</u>.

14. (currently amended) The system as in Claim 9, wherein the dynamically-configurable write mode selection module further comprises means for enabling the <u>function, address, and control information</u> ~~selected subset of the operational~~ information to be stored in the memory if the ~~subset of operational~~ information is received from a predetermined one or more of the functional modules.

15. (currently amended) The system as in Claim 9, wherein the dynamically-configurable timing control module comprises a dynamically-scannable register coupled to the control interface to receive and store the collection initiation identifiers and the

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collection termination identifiers, wherein the dynamically-scannable register includes a plurality of outputs to provide capture enable/disable signals to enable storing of the function, address, and control ~~selected subset of operational~~ information into the memory upon activation of an initiation event corresponding to the collection initiation identifier, and to terminate storing of the function, address, and control ~~selected subset of operational~~ information into the memory upon activation of a termination event corresponding to the collection termination identifier.

16. (currently amended) The system as in Claim 9, further comprising:

a data interface coupled to receive the operational information from the functional modules; and

a multiplexing module coupled to the data interface to exclude the operational information external to the function, address, and control ~~selected subset of operational~~ information identified by the selectable write mode identifiers.

17. (currently amended) The system as in Claim 16, further comprising a write data register coupled to the multiplexing module to receive and store the function, address, and control ~~selected subset of operational~~ information.

18. (currently amended) The system as in Claim 9, further comprising a dynamically-configurable read mode selection module coupled to the control interface to receive a selectable read mode identifier, and to enable the function, address, and control ~~selected subset of operational~~ information stored in the memory to be accessed.

19. (previously presented) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, selectable read mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable selected subsets of the operational information to be stored in the memory in response to the received write mode identifier;

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the selected subset of operational information into the memory upon activation of an initiation event corresponding to the received collection initiation identifier, and to terminate storing of the selected subset of operational information into the memory upon activation of a termination event corresponding to the received collection termination identifier;

a dynamically-configurable read mode selection module coupled to the control interface to receive the selectable read mode identifier, and to enable the selected subset of operational information stored in the memory to be accessed; and

a dynamically-configurable read data register coupled to the memory to receive and temporarily store the selected subset of operational information in response to the selectable read mode identifier.

20. (original) The system as in Claim 19, further comprising:

a data interface coupled to receive the operational information from the functional modules;

a multiplexing module coupled to the data interface to exclude the operational information external to the selected subset of operational information identified by the selectable write mode identifiers;

a write data register coupled to the multiplexing module to receive and store the selected subset of operational information; and

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a second multiplexing module coupled between the memory and the dynamically-configurable read data register to selectively allow the selected subset of information from the write data register or from the memory to be transmitted to the dynamically-configurable read data register.

21. (original) The system as in Claim 19, wherein the dynamically-configurable read data register is read via a dynamic scan operation.

22. (previously presented) The system as in Claim 19, wherein the dynamically-configurable read mode selection module comprises a read mode scan register that is loaded via a dynamic scan operation.

23. (currently amended) A system for selectively collecting information in a computing environment having a plurality of functional modules, wherein each functional module is associated with time-varying operational information as each functional module operates, and wherein analysis of the operational information may be used to identify operational defects in the computing environment, the system comprising:

a memory for storing the operational information associated with the functional modules;

a control interface to provide selectable write mode identifiers, collection initiation identifiers and collection termination identifiers;

a dynamically-configurable write mode selection module coupled to the control interface to receive one of a plurality of the selectable write mode identifiers, and to enable the storing in the memory of <u>function, address, and control</u> ~~selected subsets of the operational~~-information <u>of a memory request</u> based on one or more conditions occurring in one or more of the functional modules, in response to the received write mode identifier; and

a dynamically-configurable timing control module coupled to the control interface to receive one of a plurality of the collection initiation identifiers and one of a plurality of the collection termination identifiers, to enable storing of the <u>function, address, and control</u> ~~selected subset of operational~~-information into the memory upon activation of an

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initiation event occurring within at least one of the functional modules and corresponding to the received collection initiation identifier, and to terminate storing of the <u>function, address, and control</u> ~~selected subset of operational~~ information into the memory upon activation of a termination event occurring within at least one of the functional modules and corresponding to the received collection termination identifier, wherein the computing environment is an integrated circuit, and wherein at least one of the plurality of functional modules are predetermined logical sections of the integrated circuit<u>, wherein in response to a first write mode identifier the dynamically-configurable timing control module enables storing of the function, address, and control information each time a memory request is received, and in response to a second write mode identifier enables storing of the function, address, and control information responsive to function and address information in the memory request matching designated function and address information</u>.

24. (original) The system as in Claim 23, wherein at least one of the plurality of functional modules are external to the integrated circuit.

25. (currently amended) A method for selectively collecting information from a plurality of functional modules in a computing environment, the method comprising:

selecting an information storage mode from a plurality of available information storage modes, wherein each of the information storage modes identifies ~~a different set of information to be stored from the others of the plurality of functional modules and identifies~~ one or more conditions occurring in one or more of the functional modules under which <u>function, address, and control information of a memory access request</u> ~~the identified set of information~~ will be stored;

designating one of a plurality of storage commencement events, wherein each of the storage commencement events identifies at least one different triggering event occurring within one or more of the functional modules to enable storage of the <u>function, address, and control</u> ~~identified set of~~ information to begin;

designating one of a plurality of storage termination events, wherein each of the storage termination events identifies at least one different triggering event occurring

within one or more of the functional modules to discontinue storage of the <u>function,</u> <u>address, and control</u> ~~identified set of~~ information;

monitoring for activation of the designated storage commencement event;

enabling storage of the <u>function, address, and control</u> ~~identified set of~~ information, as governed by the selected information storage mode, upon recognition of the activation of the designated storage commencement event<u>, wherein in response to</u> <u>a first information storage mode the function, address, and control information is stored</u> <u>each time a memory request is received, and in response to a second information</u> <u>storage mode the function, address, and control information stored responsive to</u> <u>function and address information in the memory request matching designated function</u> <u>and address information</u>;

monitoring for activation of the designated storage termination event; and

disabling storage of the <u>function, address, and control</u> ~~identified set of~~ information upon recognition of the activation of the designated storage termination event.

26. (currently amended)   The method of Claim 25, wherein enabling storage of the <u>function, address, and control</u> ~~designated set of~~ information comprises storing the <u>function, address, and control</u> ~~designated set of~~ information in a memory, and wherein the method further comprises retrieving the ~~set of~~ information stored in the memory.

27. (currently amended)   The method of Claim 26, further comprising reconfiguring the designated information storage mode to designate an information retrieval mode, and wherein retrieving the ~~set of~~ information comprises retrieving the ~~set of~~ information from the memory in response to the designation of the information retrieval mode.

28. (original) The method of Claim 27, wherein reconfiguring the designated information storage mode comprises dynamically scanning a retrieval mode identification into a scan register to designate the information retrieval mode.

29. (original) The method of Claim 25, further comprising reconfiguring the designated information storage mode to designate another one of the plurality of information storage modes.

30. (currently amended) A method for selectively collecting information from a plurality of functional modules in a computing environment, the method comprising:

designating one of a plurality of information storage modes, wherein each of the information storage modes identifies a different set of information from the plurality of functional modules to be stored and identifies one or more conditions occurring in the computing environment under which function, address, and control information of a memory access request the designated set of information will be stored;

designating one of a plurality of storage commencement events, wherein each of the storage commencement events identifies at least one different triggering event occurring within one or more of the functional modules to enable storage of the function, address, and control designated set of information to begin;

designating one of a plurality of storage termination events, wherein each of the storage termination events identifies at least one different triggering event occurring within one or more of the functional modules to discontinue storage of the function, address, and control designated set of information;

monitoring for activation of the designated storage commencement event;

enabling storage of the function, address, and control designated set of information, as governed by the designated information storage mode, upon recognition of the activation of the designated storage commencement event, wherein in response to a first information storage mode the function, address, and control information is stored each time a memory request is received, and in response to a second information storage mode the function, address, and control information stored responsive to function and address information in the memory request matching designated function and address information;

monitoring for activation of the designated storage termination event;

disabling storage of the function, address, and control ~~designated set of~~ information upon recognition of the activation of the designated storage termination event; and

reconfiguring the designated information storage mode to designate another one of the plurality of information storage modes, wherein reconfiguring the designated information storage mode comprises dynamically scanning a storage mode identification into a scan register to designate the information storage mode.

31. (original) The method of Claim 25, further comprising reconfiguring the designated storage commencement event to designate another one of the plurality of storage commencement events.

32. (original) The method of Claim 31, wherein reconfiguring the designated storage commencement event comprises dynamically scanning a storage commencement identification into a scan register to designate the storage commencement event.

33. (original) The method of Claim 25, further comprising reconfiguring the designated storage termination event to designate another one of the plurality of storage termination events.

34. (original) The method of Claim 33, wherein reconfiguring the designated storage termination event comprises dynamically scanning a storage termination identification into a scan register to designate the storage termination event.

35. (previously presented) The method of Claim 1, further comprising controllably designating at least one of the plurality of data collection periods based on a commencement event independent of the events occurring within designated portions of the computing environment.

36. (previously presented) The method of Claim 1, further comprising controllably designating at least one of the plurality of data collection periods based on a

termination event independent of the events occurring within designated portions of the computing environment.

37. (new)   The method of claim 1, wherein the storing step, in response to a third mode stores the function, address, and control information at predetermined clock cycles, and responsive to a fourth mode and a cache invalidation event stores cache-invalidate function and cache-invalidate address information.

38 (new)   The method of claim 1, wherein a first data collection period is initiated in response to the designated mode, a second data collection period is initiated in response to function and address information of the memory request matching designated function and address information, and a third data collection period is initiated in response to a control signal from an instruction processor.

39. (new)   The method of claim 38, wherein a data collection period is terminated in response to function and address information in the memory request matching designated function and address information.

40. (new)   The method of claim 38, wherein a data collection period is terminated in response to a control signal from an instruction processor.

41. (new)   The method of claim 38, wherein a data collection period is terminated in response to storage of function, address, and control information for a designated number of memory requests.

42. (new)   The method of claim 38, wherein a data collection period is terminated in response to an error signal.

43. (new)   The method of claim 38, wherein a data collection period is terminated in response consecutively receiving a number of memory requests from a requester other

than an instruction processor without receiving a memory request from the instruction processor

44. (new)   The method of claim 38, wherein a data collection period is terminated in response to consecutively receiving a number of memory requests from a requester other than a bus without receiving a memory request from the bus.